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THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

(a) to stimulate the scientific study and discussion of all aspects of entomology,
(b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
(c) to compile a comprehensive list of all Victorian insect species,
(d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at room AG17, La Trobe University Carlton Campus, 625 Swanston Street, Carlton, Melway reference Map 2B E10 at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	$20.00
Country Member	$16.00 (Over 100 km from GPO Melbourne)
Student Member	$12.00
Associate Member	$ 5.00 (No News Bulletin)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover design by Alan Hyman.

Cover illustration of *Synlestes weyersii tilyardi* (O.: Synlestidea) ♂ by Catherine Symington.

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MINUTES OF THE ANNUAL GENERAL MEETING, 20 JUNE 1997

The Vice President, A. Kellehear, opened the General Meeting at 8:06 pm

Present: P. Carwardine, D. Dobrosak, I. Endersby, A. & E. Farnworth, A. Kellehear, T. Morton, R. MacPherson, D. Stewart.

Visitors: M. Endersby, J. Fook, C. Peterson, J. Tinetti.

Apologies: N. Stewart.

Minutes:

Minutes of the 21 June 1996 Annual General Meeting [*Vic. Ent.* 26(4):61] were accepted with the amendment of the finishing time which should read 8:15 pm (I. Endersby/R. MacPherson).

Treasurer's Report:

The Treasurer reported that the accounts were published in the June 1997 issue of *Victorian Entomologist*. The accounts were accepted (I. Endersby/A. Farnworth). A vote of thanks was extended to the Society's Auditor, Mr. Sid Cowling for his work.

Appointment of Auditor:

Mr S. Cowling was re-appointed auditor.

Committee Reports:

No reports were given as the Conservation and ENTRECS Committees did not meet last year.

Nominations for Council Positions:

The Public Officer called for nominations from the floor as no written nominations had been received. The existing Office bearers agreed to continue in their positions and the following were duly elected unopposed.

President:	A. Kellehear
Vice President:	Vacant
Secretary:	D. Dobrosak
Treasurer:	I. Endersby
Editor:	D. Dobrosak
Public Officer:	I. Endersby
Excursion Secretary:	P. Carwardine
Councillors:	R. MacPherson, D. Stewart, N. Stewart

The meeting was closed by the Public Officer at 8.16 pm.

MINUTES OF THE GENERAL MEETING, 20 JUNE 1997

The Treasurer, Ian Endersby, opened the General Meeting 8.16 pm

Present: P. Carwardine, D. Dobrosak, I. Endersby, A. & E. Farnworth, A. Kellehear, T. Morton, R. MacPherson, D. Stewart.

Visitors: M. Endersby, J. Fook, C. Peterson, J. Tinetti.

Apologies: N. Stewart.

Minutes: Minutes of the 18 April 1997 General Meeting [Vic. Ent. 27(3):41-42] were accepted (A. Farnworth/E. Farnworth).

Treasurer's Report: The Treasurer presented the financial statement as of 20 June 1997:

Account balances stand at: General Account $4,797; Le Souëf Award Account $3,309. Membership is 102 including 6 Associate members and 10 subscribers.

Editor's Report:

The Editor reported that articles were in hand for the next two issues of Victorian Entomologist and that the cost of printing the news bulletin had risen to $140 for 130 copies.

Correspondence:

Letter from David Meehan advising of his resignation as Councillor due to other commitments.

Presidential Address:

Dr. Allan Kellehear, presented a talk on the Romance of Insects in European Art. The talk was a pleasing contrast to the Society's usual speakers. Allan had researched far and wide to provide a comprehensive history on the role of insects in European art. The examples quoted were accompanied by a series of about sixty slides from the stark surrealism of 'The Ants' by Salvador Dali to the timeless images of May Gibbs' gumnut babies.

Allan discussed the full range of the artistic use of insects in European Art and completed his presentation with a poignant reminder of the hardening of children's perceptions of insects with age. The fascination of little children with larvae in jam jars is a stark contrast to the 'Baygon' and 'pest' mentality of most adults when confronted with an insect.

A vote of thanks was extended to the President for the interesting and informative talk he presented.

(The text of the Presidential Address will be reproduced in a future issue of Victorian Entomologist - Editor)

General Business:

New members: A. Bould, E. Jaworowski and N. Jaworowski were elected to membership of the Society.

Microcosmos: I. Endersby informed the meeting that he had recently seen the movie Microcosmos and recommended that all members should avail themselves of the opportunity to view this film on the world of insects and invertebrates.

Schools and Insects: Tony Morton reported that some Schools had obtained Orchid Butterfly larvae from the Zoo.

Exhibits: R. MacPherson showed a display of the White Stemmed Gum moth, *Chelepteryx collesi* Gray, Family: Anthlidae and spoke about its life history.

The meeting was closed by the Treasurer at 9:33 pm.

MINUTES OF COUNCIL MEETING, 18 JULY 1997

The President, A. Kellchear, opened the Council Meeting 8.16 pm

Present: P. Carwardine, D. Dobrosak, I. Endersby, A. Kellchear, R. MacPherson

Apologies: D. & N. Stewart

Minutes: Minutes of the 15 November 1996 Council Meeting [Vic. Ent. 26(6):106-108] were accepted (R. MacPherson/I. Endersby).

Treasurer's Report: The Treasurer presented the financial statement as of 18 July 1997:

Account balances stand at: General Account $4,939; Le Souëf Award Account $3,109. Membership is 102 including 6 Associate members and 10 subscribers.

Editor's Report:

The Editor reported that articles were in hand for the next two issues of Victorian Entomologist and approximately half of the December issue.

Correspondence:

Letter from Open Training & Education Network requesting permission to use the development of the Society's News Bulletin as a design example in a desktop publishing course. Agreed subject to adequate acknowledgment of the Society.

Excursion Report:

The Excursion and General Meeting to the Institute for Horticultural Development, Knoxfield was briefly discussed, A map defining the meeting location will be prepared by the Editor and included in the October issue of Victorian Entomologist.

General Business:

Australian Entomological Society Conference: Council discussed the role which this Society could have at the Australian Entomological Society, 28th Annual General Meeting and Scientific Conference held at the University of Melbourne, 28 September - 3 October 1997. The Editor agreed to prepare a specific promotional brochure, indicating the benefits of membership of our Society to be distributed at the Conference.

Society Sponsorship of AES Publication: Council agreed that a contribution towards the sponsorship of the Australian Entomological Society Conference Publication, with suitable recognition, would be a positive promotional benefit to our Society. It was moved that a contribution of $200 be made towards sponsorship of the Australian Entomological Society Conference Publication. (A. Kellehear/P. Carwardine).

Next Years Programs: : Council discussed at length, the program for next years General Meetings. Details would be worked on at the next Council Meeting.

Agenda for Next Council Meeting: (1) Entomological consultancy work to Government and other groups. (2) Next years program.

The meeting was closed by the President at 10:05 pm.

A LIST OF BUTTERFLIES IN THE KATH ALCOCK COLLECTION FROM THE SOUTH-EAST REGION OF SOUTH AUSTRALIA

R. GRUND
9 Parkers Rd, Torrens Park, Adelaide, S.A., 5062

Abstract
A list of butterflies is presented, collected by Kath Alcock from the South-East Region of South Australia during the period 1939 to the present.

Introduction
Kath Alcock, is a noted water-colour artist and naturalist for the South-East Region of South Australia. She was born at Bordertown in 1925, grew up near Wolseley, spent her married life at Comaum, and is now retired to Naracoorte. All her life she has been a keen naturalist and has made a collection of butterflies and moths, particularly the latter, starting in 1939 and all the time painting in water-colour everything she saw and has now amassed thousands of these paintings, extremely well done and accurate in every detail. It is surprising and unfortunate that more recognition of her work has not occurred, or that use of her paintings has not been made.

The author had a chance to examine her collection on 9 February 1997. The collection of butterflies is not large, partly due to the ravage of time, and she is essentially no longer adding to the collection. It is the intention of this paper to document the butterflies as it contains unique specimens never before recorded from this poorly surveyed area of South Australia.

Results
The following list documents her butterfly collection, which was made principally at Wolesley *(1939-1949) and Comaum ^(1950-1976). Other collection areas are noted separately.

HESPERIIDAE
Dispar compacta ^
Hesperilla donnysa delos ^
Motasingha trimaculata trimaculata * (on *Lepidosperma viscidum*)
Taractrocera papyria papyria (Naracoorte)
Ocybadistes walkeri hypochlorus (Naracoorte)

PAPILIONIDAE
Papilio(Eleppone) anactus ^
Papilio(Princeps) aegeus aegeus *
Papilio(Princeps) demoleus sthenelus *^

PIERIDAE
Catopsilia pyranthe crockera form *lacteola* *
Eurema smilax *^
Delias aganippe *
Belenois java teutonia *^
Pieris(Artogeia) rapae rapae *^ (first seen at Wolseley 1942)

DANAINAE
Danaus chrysippus petilia ^
Danaus plexippus plexippus ^

SATYRINAE
Geitoneura klugii klugii *^ (on *Vulpia* sp)
Heteronympha merope merope *^
Oreixenica kershawi kanunda (Port MacDonnell)

NYMPHALINAE
Vanessa kershawi *^
Vanessa itea *^
Junonia villida calybe *^ (on *Centaurium spicatum*)

LYCAENIDAE
Lucia limbaria * (on *Oxalis perennans*, collected only during the early 1940's)
Ogyris amaryllis meridionalis * (on *Amyema linophyllum orientale*)
Candalides hyacinthinus simplex *
Nacaduba biocellata biocellata *
Theclinesthes miskini miskini *
Theclinesthes serpentata serpentata *^
Lampides boeticus *^
Zizina labradus labradus *^

Although expected to occur in the region, a number of the commoner butterflies actually represent their first collection from the South-East, (outside of the Coorong). These include *Taractrocera papyria papyria*, *Papilio(Eleppone) anactus*, *Papilio(Princeps) demoleus sthenelus*, *Lucia limbaria*, *Ogyris amaryllis meridionalis*, *Theclinesthes miskini miskini* and *Theclinesthes serpentata serpentata*.

Discussion
Dispar compacta (Butler)
Kath Alcock was the first person to collect this skipper from South Australia, but unfortunately she never publicised this discovery. She had collected it from Comaum as early as 1960 where it was usually seen feeding at flowers in her garden.

Motasingha trimaculata trimaculata (Tepper)
This skipper was apparently common around its foodplant *Lepidosperma viscidum* in the Wolseley area. The author surveyed the Wolseley area in December of 1995 (Grund 1996) and did not see this species. However, the survey occurred outside of its flight time and this butterfly is more easily noted when flying, as its immature stages are usually very difficult to find.

Papilio(Princeps) aegeus aegeus Donovan
A single female in good condition exists in the collection. It was obtained in 1965 and represents the first specimen to be recorded from the South-East.

Catopsilia pyranthe crockera (W.S. Macleay) form *lacteola* Waterhouse and Lyell
This butterfly is represented by a single female in good condition, collected during the big subtropical migration of 1955. Another *Catopsilia* specimen (unknown species), collected in 1939 was sent to the Museum of Victoria for identification, where it remains.

Euploea core corinna (W.S. Macleay)
This butterfly was seen at Wolesley in 1948, but not captured. It was passing through on a very strong north-east wind.

Ogyris amaryllis meridionalis Bethune-Baker

This is the first record of this butterfly from the South-East (outside of the Coorong). It is the inland form of the butterfly, having a much narrower, black terminal margin on the upperside compared to the southern, coastal form. It apparently used to be locally common during the period 1939-1950, where it was seen flying around its foodplant *Amyema linophyllum orientale* that grew on the bullloaks, *Allocasuarina luehmannii*. As mentioned above, the author surveyed the Wolseley area in December of 1995 (Grund 1996) and did not see one butterfly of this species. It is likely to have been exterminated due to the current practice of using aerial insecticides, as all the remaining bulloak remnants in the South-East are within or adjacent to areas of intensive farming.

References

COMMON, I.F.B. and WATERHOUSE, D.F. 1981. *Butterflies of Australia*. 682pp. Angus and Robertson, Sydney.

DUNN, K.L. and DUNN, L.E. 1991. *Review of Australian Butterflies: distribution, life history and taxonomy*, Parts 1-4. 660pp. Published by the authors, Melbourne.

FISHER, R.H. 1978. *Butterflies of South Australia*. 272pp. Government Printer, Adelaide.

FISHER, R.H. 1983. Butterflies of the South East in *Natural History of the South East*, pp215-222. TYLER, M.J., TWIDALE, C.R., LING, J.K. & HOLMES, J.W. (Eds). Royal Society of South Australia, Adelaide.

GRUND, R. 1996. Range extensions, new foodplant recordings and biology for some South Australian butterflies. *Victorian Entomologist*. 26(5):93-100.

JESSOP, J.P. and TOELKEN, H.R. (Eds). 1986. *Flora of South Australia*. Parts 1-4, 2248pp. Government Printer, Adelaide.

JESSOP, J.P. (Editor) 1993. *A List of the Vascular Plants of South Australia*, (Edition IV). 151pp. The Botanic Gardens of Adelaide and State Herbarium.

NIELSEN, E.S., EDWARDS, E.D. & RANGSI, T.V. (Eds). 1996. Checklist of the Lepidoptera of Australia. *Monogr. Aust. Lepid.* 4. 529pp. CSIRO Publishing, East Melbourne.

SOME OBSERVATIONS OF A LATE TRIP TO THE NORTH EASTERN MOUNTAINS

David & Joyce Holmes.
33 Fig St. Dromana. Victoria. 3936.

We decided to have a late collecting trip to the Bright area. So on the 7th March 1997 we journeyed to that area. In the past we had been there in January or February. Although it was late, we were surprised to find *Heteronympha Paradelpha* still flying alongside the Ovens River, a few kms out of Bright. Most other species that were flying were badly worn and some were not there at all. There were a few worn specimens of *Heteronympha penelope* and *Junonia (Precis) villida.*

On Tuesday 11th March I went to Mt. Buffalo. Here again most species had flown a few weeks earlier, perhaps due to the very hot weather we had in early February. The insects know the weather conditions better than we do, and will emerge when it suits them, for their survival. There were a few worn specimens of *Heteronympha solandri, Oreixenica correae. O. lathoniella herceus* and *Zizina labradus.* However *O. latialis theddora* were in fair numbers, but most of them were females, although there were a few freshly emerged males. This Sub-species is endemic to Mt. Buffalo. There are two other Sub-species, *O. latialis nama* at Nimmitabel, and *O. latialis latialis*, which are found over most of the Snowy Mountains, in New South Wales, also Mt. Hotham and other high areas in Victoria.

On 17 th March we went to Falls Creek. At Howmans Gap we looked for specimens, but found only a few very worn *Heteronympha solandri, Oreixenica kershawi, O. lathoniella herceus. Heteronympha penelope and Zizina labradus.*

We then travelled about 20 kms around the Rocky Valley Reservoir to a place on the road, near Mt. Cope. I was looking for *O. latialis latialis* but found none. This place is usually very good for *O. orichora, O. correae* and lots of alpine moths, but a little earlier in the season.

Perhaps we were a fortnight late for this year, due to the extreme heat in February.

References.

Common I.F.B. & Waterhouse, D.F. Butterflies of Australia. Revised Edition, Angus & Robertson, Sydney.

Holmes. D. & J. 1993. A trip to the old & the new mountain country. *Vic. Ent.* **23** (4) 78-79.

Holmes. D. & J. 1990. A return to the North East Mountains. *Vic. Ent.* **20** (2) 53 - 55.

Holmes. D. 1988. Collecting in the North East Mountain Area.. *Vic. Ent.* **18** (3) 43 - 44.

Holmes. D. 1984. Collecting in the North East Mountains. Vic. Ent. 14 (4) 39 - 40.

BUTTERFLY SPECIES RICHNESS AT FOUR HILLTOPS IN NORTHERN COASTAL NEW SOUTH WALES

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SUMMARY

A study was made of the butterflies associated with four hilltops in northern coastal New South Wales. Butterfly species richness was found to be similar at all study sites, although the species present varied considerably between sites. At two summits, species richness appeared to be largely correlated with larval and adult food plant species richness. A different situation applied at the other two hilltops. Here, species richness was more due to evolved hilltopping behaviour, the presence of food plants at these sites assuming a lesser role.

INTRODUCTION

Many butterfly species, especially certain Hesperiidae, Papilionidae and Lycaenidae, tend to aggregate on hill or ridge tops, and many such areas are well known to butterfly collectors. Detailed, quantitative observations on butterfly hilltop communities is one area which has not been widely researched in Australia. Therefore, it was decided to complete a study of the butterfly fauna at four distinctly different summits in north-eastern New South Wales, obtaining information from transect surveys and general observation and collecting over a four month period from November 1991 to February 1992. This work was completed as a post-graduate thesis and analysed the three components of species richness: the particular species observed to be present, temporal species distribution and the total number of species for each butterfly community. Observations of butterfly behaviour and detailed site floral descriptions were also carried out, although they are not included in this article.

SITE DESCRIPTIONS

Site Name	Location	Vegetation	Altitude (m)	Rainfall (mm)
Site 1 Razorback Lookout	Tweed Heads	Littoral Rainforest	84	1987
Site 2 Lions' Lookout	Murwillumbah	Wet Schlerophyll	80	1690
Site 3 Peates Mountain	12 km W of Mullumbimby	Wet Schlerophyll	602	1772
Site 4 Ramomie Geodetic Station	24 km W of Grafton	Dry Schlerophyll	252	970

All four sites were known or thought to be significant butterfly habitat areas, as they are obvious landmarks dominating the surrounding countryside. Each hilltop exhibits differing physical and vegetative characteristics and all have experienced varying degrees of habitat modification due to human activity.

RESULTS

1. BUTTERFLY SPECIES PRESENT

Table 1. A list of butterfly species recorded at each study site

* Denotes species exhibiting hilltopping behaviour

Species	Site 1	Site 2	Site 3	Site 4
HESPERIIDAE				
Hasora discolor	✓	✓		
Hasora khoda		✓		
Euschemon rafflesia		✓		
Chaetocneme beata		✓		
Netrocoryne repanda		✓	✓*	✓*
Trapezites symmomus			✓	
Trapezites eliena			✓*	✓*
Trapezites maheta			✓	
Trapezites petalia				✓*
Dispar compacta				✓*
Signeta flameata			✓	
Toxidia peron	✓*	✓*	✓*	✓*
Neohesperilla xanthomera				✓*
Hesperilla malindeva				✓
Hesperilla ornata				✓
Ocybadistes walkeri	✓	✓		
Telicota anisodesma	✓	✓		
Telicota colon	✓	✓		
Cephrenes augiades	✓	✓	✓	
Panara naso				✓*
Total Species	6	10	7	9

Table 1. A list of butterfly species recorded at each study site (Continued)

Species	Site 1	Site 2	Site 3	Site 4
PAPILIONIDAE				
Protographium leosthenes	✓*	✓*	✓*	✓*
Graphium macleayanum	✓*	✓*	✓*	✓*
Graphium sarpedon	✓	✓	✓*	✓*
Graphium eurypylus	✓*	✓	✓	✓*
Papilio anactus		✓*	✓*	✓*
Papilio aegeus	✓	✓	✓	✓*
Papilio fuscus	✓			
Papilio demoleus				✓
Ornithoptera richmondia			✓	
Total Species	6	6	7	7

Species	Site 1	Site 2	Site 3	Site 4
PERIDAE				
Catopsilia pyranthe		✓		✓
Catopsilia pomona	✓	✓		✓
Catopsilia gorgophone		✓		
Eurema hecabe		✓		
Elodina parthia				✓
Elodina angulipennis	✓	✓		
Delias argenthona	✓*	✓*	✓*	✓*
Delias aganippe				✓*
Delias nigrina			✓*	✓*
Delias nysa				✓*
Anaphaeis java	✓	✓	✓	
Cepora perimale	✓	✓	✓	✓
Appias paulina	✓	✓	✓	
Pieris rapae	✓	✓		
Total Species	7	10	5	8

* Denotes species exhibiting hilltopping behaviour

Table 1. A list of butterfly species recorded at each study site (Continued)

Species	Site 1	Site 2	Site 3	Site 4
NYMPHALIDAE				
Danaus plexippus	✓	✓	✓	
Danaus chrysippus	✓	✓		✓
Danaus affinis		✓		
Danaus hamatus	✓	✓		✓
Euploea core	✓	✓		
Melantis leda		✓		
Hypocysta metirius			✓	✓
Hypocysta adiante				✓
Heteronympha merope		✓	✓	✓
Tisiphone abeona			✓*	
Polyura pyrrhus	✓*	✓*		✓*
Phaedyna shepherdi	✓	✓	✓	
Mynes geoffroyi	✓			
Doleschallia bisaltide	✓	✓		
Hypolimnas bolina	✓	✓		✓*
Vanessa kershawi				✓*
Vanessa itea				✓*
Acraea andromacha	✓*	✓*		✓*
Total species	**10**	**12**	**5**	**10**

* Denotes species exhibiting hilltopping behaviour

Table 1. A list of butterfly species recorded at each study site (Continued)

Species	Site 1	Site 2	Site 3	Site 4
LYCAENIDAE				
Acrodipsas cuprea				✓*
Acrodipsas brisbanensis				✓*
Acrodipsas myrmecophila				✓*
Acrodipsas arcana				✓*
Hypochrysops delicia				✓*
Hypochrysops ignitus				✓*
Ogyris genoveva		✓*	✓*	✓*
Ogyris abrota			✓*	
Ogyris olane			✓*	✓*
Ogyris oroetes				✓*
Deudorix epijarbas	✓	✓		✓*
Candalides margarita	✓			✓*
Candalides absimilis	✓	✓	✓*	
Candalides cyprotus				✓*
Candalides hyacinthinus	✓		✓*	
Candalides xanthospilos			✓	
Nacaduba berenice	✓			
Prosotas dubiosa	✓			
Prosotas felderi	✓		✓	
Erysichton lineata	✓	✓	✓	
Theclinesthes miskini				✓*
Theclinesthes scintillata	✓			
Danis hymetus		✓	✓	✓
Lampides boeticus				✓
Syntarucus plinius		✓		
Zizina labradus	✓		✓	✓
Everes lacturnus		✓		
Total species	**10**	**7**	**10**	**16**

* Denotes species exhibiting hilltopping behaviour

2. TEMPORAL DISTRIBUTION OF SPECIES

Table 2. Butterfly species' temporal distribution at each study site

Site	Month			
	November	December	January	February
1.	23	27	32	29
2.	23	19	35	26
3.	23	20	24	7
4.	25	22	36	31
Total species for all sites	56	56	70	57

3. TOTAL NUMBER OF SPECIES

Table 3. Butterfly and plant species recorded at each study site

SITE	PLANT SPECIES	BUTTERFLY SPECIES	HILLTOPPING SPECIES
1.	62	40	7
2.	55	45	8
3.	25	34	15
4.	27	50	35
Butterfly species observed at all sites - 88			

DISCUSSION

1. BUTTERFLY SPECIES PRESENT

Results of this study suggested that in coastal areas where butterfly densities were high, it was the presence of larval and adult food plants which largely determined which species occurred on summits, most of these species being relatively common. In areas where butterfly densities were low, the presence of food plants did not appear to be the dominant factor in determining which species were present on a particular hilltop. Results of this and other studies (Scott 1968, 1974a; Shields 1967 and others) strongly suggest that evolved mate-locating behaviour is the major factor in determining which species are present on these summits and that such behaviour serves to produce local concentrations of males which would otherwise be very sparsely distributed (Common and Waterhouse 1981).

2. TEMPORAL DISTRIBUTION OF SPECIES

Despite inherent limitations of this study in defining species' temporal distribution, some peaks in butterfly species populations were observed. For example, the Hesperiid *Trapezites symmomus* was most numerous at Site 3 in November 1991, becoming progressively less common during each subsequent monthly visit.

Protographium leosthenes and *Graphium eurypylus* (Papilionidae) were most abundant at Sites 1 and 2 during January 1992, and *Graphium sarpedon* (Papilionidae) was most common in February. Few *Graphium sarpedon* were observed at these sites in March (personal observation). At Site 4, the fast-flying *Ogyris genoveva* (Lycaenidae) was most abundant in both January and February, with most specimens captured during these months being in perfect condition.

Variations in annual rainfall, temperature and food source availability all affect temporal distributions of butterfly species (personal observation). During this study, all sites recorded a peak in species richness in January 1992 (Table 2). However, this overall peak in species richness was not matched by an corresponding peak in butterfly abundance, with the exception of Site 4, which recorded a January maximum in butterfly numbers.

3. TOTAL NUMBERS OF SPECIES

Clearly, Sites 1 and 2 attracted many locally common species, due to the availability of larval and adult food plants, whereas Sites 3 and 4 attracted higher numbers of less common species (Table 3). The presence of food plants at Sites 3 and 4 was evidently not as important in determining numbers of species occurring at these summits. Despite these differing influences, total numbers of species occurring at all four sites was similar.

ACKNOWLEDGMENTS

I would firstly like to thank my supervisor, Professor R L Kitching, who encouraged me to embark on the project from which this article is derived. He provided enthusiastic support and guidance throughout. From the University of New England and Griffith University, I was also indebted to Elsa Dexter and Heather Mitchell for access to reference material and assistance in preparation of the original thesis.

REFERENCES

Common, I.F.B. and Waterhouse, D.F. (1981) Butterflies of Australia. Angus and Robertson, Australia.

Scott, J.A. (1968) Hilltopping as a mating mechanism to aid the survival of low density species. J. Res. Lepid. 7 : 191-204.

Scott, J.A. (1974a) Mate-locating behaviour of butterflies. Amer. Midl. Nat. 91 : 103-117.

Shields, O. (1967) Hilltopping. An ecological study of summit congregation of butterflies on a southern Californian hill. J. Res. Lepid. 6 : 69-178

INSECT BEHAVIOUR (1)

[An occasional series reporting examples of insect ecology or ethology from the current literature]

The Western Australian Dawson's burrowing bee *Amegilla dawsoni* shows a distinct size dichotomy with large and small males, and each has a different mating strategy. Large males compete aggressively for females in the clear areas where they will emerge, with the dominant males achieving the bulk of the matings. In contrast, the small, or minor, males patrol the peripheral vegetation achieving occasional matings with females which have escaped the cordon of major males as they fought with each other.

It could be expected that selection would favour the large males who have the greater reproductive success. However, producing larger sons will have a higher cost to the mother and so it might be to her advantage to allocate some of her investment in offspring to the smaller males. John Alcock investigates this problem in "Male size and survival: the effects of male combat and bird predation in Dawson's burrowing bees, *Amegilla dawsoni*" {Ecological Entomology 21: 309-316 (1996)].

Alcock sampled bees which were patrolling the emergence site, those which were wrestling with a rival male, those which were copulating, and those in the peripheral vegetated zone. Patrolling males were caught when attracted to a dead pinned specimen of a female. Head width was measured for each male as it is highly correlated with body mass and then its forewings were examined and scored for damage - from "1" where they were completely undamaged and unworn with no nicks, to "5" where both forewing edges were irregularly tattered and torn and both wingtips worn away. By mark, release, recapture techniques he estimated the life of large and small males and he also systematically recorded the number and types of attack made by birds. In addition he checked regurgitated bird pellets to find the size distribution of bees that had been eaten.

Large male Dawson's burrowing bees often wrestle with one other as they battle for strategic positions at emergence tunnels containing virgin females. The most extreme result of such fights is an injury to the point of attachment or a broken leading edge vein which leaves the male unable to fly.

Pied Butcherbirds *Cracticus nigrogularis* preyed on Dawson's burrowing bees, either by aerial flights or by attacking bees while they were on the ground, wrestling or mating. Because the birds caught bees at the open emergence site but not in he peripheral zone they preferentially took larger males. Most of the head capsules extracted from bird pellets were also of a size consistent with larger males.

Because major males are more likely to be involved in wrestling matches than minor males, and because they are also more exposed to avian predators, they would be expected to have shorter lives. The mark-recapture studies showed that minors which patrolled in the emergence area (as some minors do) lived significantly longer than the majors. There seems to be a survival handicap for the larger males; they were also found to have fewer total days of activity and shorter periods of activity on any one day.

If we look at this system in terms of risk and reward those males which have the highest potential for reward in terms of reproductive success, also face the highest risk from a debilitating injury or exposure to predators. Dawson's burrowing bees adopt one of two mating strategies. Large males pursue a high risk strategy that can have a high reward while the minor males adopt a low risk strategy that has a low probability of reward. Females, therefore, seem to take a portfolio approach to their investment in sons: most of their reproductive capital is placed in high risk/high reward stocks, but they balance this with some low risk/low reward ones. The analogy with the prudent human investor is very strong.

Ian Endersby

FIELD RECOGNITION OF THE TINY GRASS BLUE BUTTERFLY, *ZIZULA HYLAX ATTENUATA* (T.P. LUCAS)

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Abstract

A simple means to recognise *Zizula hylax attenuata* flying amongst other grass blues is described and additional notes on behaviour and life history are recorded.

Introduction

Although mainly a tropical butterfly in Australia, the species extends south along the eastern coast to Sydney and its life history has only recently been described (Braby and Woodger, 1994). The species seems poorly represented in collections despite its widepsread distribution. One possible explanation for its relative scarcity in field collections is for confusion between this species and the other grass blues, a circumstance noted in Africa (Clark and Dickson, 1971).

Field Notes

In Townsville the species has been generally abundant most years that I have searched for it. I have noticed, however, that individuals usually fly amongst other grass blues and can be outnumbered by them. Although individual *Zizula hylax attenuata* may occur as our smallest butterfly, the size range does overlap with other small grass blues and the species may not be easy to recognise amongst the others. One field character which searchers may find useful is the distinctive swaying or waggling habit of *Zizula hylax attenuata* after alighting. The typical situation is that an individual will fly slowly, amongst the foliage close to the ground and eventually alight on a plant or flower. Unlike any other grass blue, the individual then sways its wings laterally, either side of the vertical position. This behaviour is sustained for some time and allows instant recognition of the species without the need to examine the underside patterns. It is interesting that Larsen records this species waggle in Kenya also (1991:239).

Although the indigenous larval food plant is *Hygrophila angustifolia* R. Br. (Acanthaceae), I have reared larvae from *Ruellia tuberosa* L. (Acanthaceae), an introduced but common garden weed (initially in Townsville, February 1993). Another unidentified garden species of Acanthaceae plant is also used. It is interesting that *Junonia hedonia zelima* (Fabricius) also uses *R. tuberosa* as its larval food plant, a coincidence that extends to *H. angustifolia* as pointed out by Braby and Woodger (1994). At times *the Zizula hylax attenuata* population in Townsville is locally abundant and based on estimates on my property in Townsville in May 1997, where *R. tuberosa* is common, can number several hundred adults per hectare. Usually the peak period is mid-year but in the garden situation they fly all year. *Ruellia* sp. has been recorded as a larval food plant for *Z. hylax* in Africa (Clark & Dickson, 1971:88).

References

BRABY, M.F. and WOODGER, T.A. 1994 The Life History of *Zizula hylax attenuata* (T.P. Lucas) (Lepidoptera: Lycaenidae), *Australian Entomologist* 21(2):39-42

CLARK, G.C. and DICKSON, C.G.C. 1971 *Life Histories of the South African Lycaenid Butterflies*, Purnell, Cape Town, 272 pp.

LARSEN, T.B. *The Butterflies of Kenya*, Oxford University Press, Oxford, 490 pp.

TELICOTA MOORE (LEPIDOPTERA: HESPERIIDAE) IN VICTORIA, PART II

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Common and Waterhouse (1981) recorded *Telicota ancilla* (Herrieh-Schäffer) from "far eastern Victoria", without doubt based on Burns (1963) who illustrated a specimen said to be this species. Later, Dunn (1988) reported *Telicota eurotas* (Felder) from Victoria for the first time, and commented that the adult illustrated by Burns was not elear enough to distinguish to speeies but suggested that it too eould be *T. eurotas*. In their comprehensive review, Dunn and Dunn (1991) plaeed all examined Vietorian material of *T. eurotas* with Lower's subspecies *eurychlora*; the specimen illustrated by Burns had still not been examined. Compounded by a second, albeit dubious, report (J. Burns 1990) these authors concluded that the presence of *T. ancilla* in Victoria was still possible but remained unverified. Officially, then, the distribution of *T. ancilla* was excluded from the state of Vietoria.

Until recently the possibility of two species of *Telicota* Moore existing in Victoria has remained enigmatie. The Thurra River population near Noorinbee from which at least four eollectors took material is, unfortunately, no longer extant (Dunn *et al.* 1994), and no other authenticated Victorian *Tclicota* populations have been discovered to date. In addition to the several specimens in three repositories examined by Dunn and Dunn (1991), there remains a specimen taken by Harry Borch on 2 January 1963 which David Crosby (pers. comm. 1997) confirmed came from the Thurra River population and also belongs to *curychlora*. Although the bulk of the Crosby collection has been donated to the ANIC this specimen (received from Clarrie Borch) is still privately held.

With the requisition of the Alexander Noble Burns' colleetion to the Museum of Victoria in early 1996, I was soon after able to examine his *Telicota* specimens. Amongst his series of *T. ancilla* I located a male labelled, "Noorinbee V. 1 Jan. 1963 A.M." with a secondary label, "A.N.Burns collection". To this speeimen I have added a 1996 determination label stating that it is a male of *T. eurotas eurychlora*. The distinctive abrasion of scales on the upper-wing surfaces confirmed, beyond doubt, that this individual is the one depieted by Burns (1963).

Amongst Burns' lengthy series placed as *T. ancilla* I found two other examples of *T. e. eurychlora* but these were from Port Macquarie NSW. This evidence suggests Burns was unable to distinguish the two taxa - his collection contained no specimens labelled *T. e. curychlora*. Taxonomically, *Telicota* is considered one of the more difficult butterfly groups, and although to me *T. e. curychlora* seems easily recognised from both *T. e. laconia* and *T. ancilla*, I understand that Alex Burns was not a keen student of the hesperiine skippers (W.N.B. Quick pers. comm. 1996). In support of this, my cursory examination of other hesperiine genera evideneed that a few other speeimens of various species were mis-identified by Burns.

Thus, there are now no authentie records of *T. ancilla* from Victoria. All known preserved material belongs to *T. eurotas eurychlora*, and all are derived from the single extirpated Thurra River population. For *T. ancilla* the southern limit in eoastal New South Wales remains that depicted in the plotted distribution map by Dunn and Dunn (1991). Germane to this, the accompanying text in Dunn and Dunn should have stated, "south to Merimbula New South Wales (MV)" on which the point plot is based, rather than the locality of "Broulee (ANIC)" which is the plot close to the southern limit of the species.

Acknowledgements

Dr Michael Braby (CSIRO) drew my attention to the discrepancy between the plotted DD91 map and the accompanying text; David Crosby gave information on the Borch specimen; Nigel Quick constructively commented on this communication and provided historical discernment; and Dr Ken Walker allowed access to the, then, newly acquired Alexander Noble Burns collection at the Museum of Victoria.

References

Burns, A.N. 1963. Two new butterfly records for Victoria. *Victorian Naturalist* 80: 76-77

Burns, J. 1990. A trip through East Gippsland via Murrungower Forest. *Victorian Entomologist* 20: 6-8

Common, I.F.B. & Waterhouse, D.F. 1981. *Butterflies of Australia*. (Revised Edition). Angus & Robertson, Sydney

Dunn, K.L. 1988. *Telicota* in Victoria (Lepidoptera: Hesperiidae). *Victorian Entomologist* 18: 105-106

Dunn, K.L. & Dunn, L.E. 1991. *Review of Australian Butterflies: distribution, life history and taxonomy*. Parts 1-4. Published by the authors.

Dunn, K.L., Kitching, R.L. & Dexter, E.M. 1994. *The conservation status of Australian butterflies*. A report to Australian National Parks and Wildlife Service, Canberra ACT. 381pp.

RECENT ARTICLES OF INTEREST

Compiled by Ian Faithfull

Scott, E., 1997. New clearwing moth joins the horehound banquet. *Under Control. Pest Plant and Animal Management News* (DNRE Victoria), No. 2, pp.2-3, May. A little moth with a big job. *Outdoors* (Dept. of Natural Resources and Environment) No.11, Winter 1997, p.19. Two moths for biological control of horehound, *Marrubium vulgare* (Lamiaceae), the horehound clearwing moth, *Chamaesphecia mysiniformis* (Sesiidae), and the horehound plume moth, *Pterophorus spilodactylus* (Pterophoridae), have been released in Victoria by the Keith Turnbull Research Institute. The clearwing moth was released for the first time in March 1997. The larvae are root borers.

Under Control. Pest Plant and Animal Management News. No. 2, May 1997. Keith Turnbull Research Institute, Department of Natural Resources and Environment, Victoria. Includes articles on weed biological control by insects including evaluations of the performanee of ragwort flea beetles in Victoria and Tasmania by John Ireson, Raelene Kwong and David McLaren; a report on biological control of thistles; an update on releases and establishment of the Paterson's eurse crown and root weevils, *Mogulones larvatus* and *M. geographicus*; news on insect agents for boneseed and bitou bush; a summary of a survey by Patriek Honan of Moreton Bay Fig psyllids, *Mycopsylla fici*, found on every one of 600 fig specimens in the City of Melbourne; tests of 10 ten liquid baits to trap European wasps (the commercial baits were best but no bait was really effective); Dr Peter Williams on post-harvest disinfestation of western flower thrips.

Weevil battles spear thistle. *Victorian Landcare* No.4, Winter 1997, pp.10-11. Trials of the thistle receptaele weevil, *Rhinocyllus conicus*, for suppression of *Cirsium vulgare*, at Strathdownie in western Victoria.

Dent, S., 1997. Valley beats the blues. *Weekly Times* 4 June p.3; Sterile fruit fly release. *North East and Goulburn Murray Farmer* July 1997 p.3. Six releases totalling 10 million sterile Queensland fruit flies (*Dacus tyroni*) were made by aircraft for the Department of Natural Resources and Environment over the Shepparton area in the five weeks to the end of May. This was the first release program of its type for the region.

Help fight the papaya fruit fly and protect Australia's fruit and vegetable industries. Queensland Department of Primary Industries, colour brochure. ?1996. First detected near Cairns in October 1995. Quarantine and eradication measures. [er. C.Maxfield]

McKenzie, L., 1997. Dung beetle released. *Country News* 10 Feb. p.11. Caniambo farmer Robert Campbell released 7000 introduced dung beetles supplied by Soilcam in early February. This is the first time the large European speeies *Geotrupes spiniger* has been released in the Shepparton area.

Barlow, G., 1997. **Bees back at work as drought breaks.** *Weekly Times* 11 June p.8. The 1993-4 drought depressed honey production by ca. 50% across Victoria and led to the loss of many hives. Recovery coincides with a new apiary code of practice allowing keeping of hives with a council permit in all but wilderness, reference and "natural catchment" areas. European wasps "can destroy beehives": the City of Greater Bendigo has called for a state-wide control strategy. An estimated 1000 hives were destroyed in their area over summer. Data on the environmental impact of *Vespula* spp. is needed.

Altona's own butterfly is one to treasure. *Outdoors* (Dept. of Natural Resources and Environment) No.11, Winter 1997, p.13. Habitat of the Altona Skipper, a subpopulation of the Yellowish Skipper, *Hesperilla flavescens flavescens* (Lepidoptera: Hesperiidae), has more than halved in the last 40 years. A master plan is being developed for a site adjacent to the Altona tip where this rare butterfly occurs.

Doeg, T., 1995. **An Assessment of Significance of the Aquatic Macroinvertebrates in the Grampians National Park: Data Inventory.** Dept. of Conservation & Natural Resources, Heidelberg, National Estates Grants Program No. 91/913. [Not seen]

Doeg, T., 1996. **An Assessment of Significance of the Aquatic Macroinvertebrates in the Grampians National Park: Final Report.** Dept. of Natural Resources and Environment, Heidelberg, National Estates Grants Program
Project No. 95/0025. [Not seen]

Kefford, B.J., **The Effect of Saline Groundwater Disposal on Macroinvertebrates in an Irrigation Channel in the Shepparton Irrigation Region.** Dept. of Natural Resources and Environment, Heidelberg. [Not seen]

Quicke, D.L.J., 1997. **Parasitic Wasps.** Chapman & Hall, London, ISBN 0-412-58350-X. 480 pp., hardcover, $137.50. All aspects of biology from genetics to behaviour and ecology; anatomy and physiology of all stages related to function and phylogeny; links between physiological and developmental feature and life history strategies; use in biological control.

Hopkin, S.P., 1997. **Biology of the Springtails. Insecta: Collembola.** Oxford University Press, London, ISBN 0-19-854084-1. 368 pp., hardcover, $105.25. Classification, biogeography, behaviour, physiology, evolution, ecology and conservation, response to pollution; complete list of world genera, 2500 references.

Thanks to C.Maxfield for contributing material.

Readers are invited to forward material suitable for inclusion in "Recent Articles of Interest" to the compiler at 16 Nabilla Avenue, Seaford, Vic., 3198.

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DIARY OF COMING EVENTS

Friday 15 August General Meeting
Talk by Ian Endersby on "The Biology and Behaviour of Dragonflies"

Friday 19 September Council Meeting

8 pm Friday 17 October General Meeting & Exeursion
to view the "Victorian Agricultural Insect Colleetion" and
facilities for the Rearing of Biocontrol Agents. At the
Institute for Horticultural Development 621 Burwood Highway, Knoxfield.

Friday 21 November Council Meeting

Friday 12 Decembher General Meeting - Members Night

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